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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,677	03/12/2001	Todd C. Mowry	19427-004930US	2643

20350 7590 11/06/2003

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EXAMINER

PORTKA, GARY J

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 11/06/2003

18

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,677

Applicant(s)

MOWRY, TODD C.

Examiner

Gary J Portka

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 2, 2003 has been entered.
2. Claims 21 and 26 have been amended by Applicant. Claims 20-31 are pending.

Claim Objections

3. Claims are objected to because of the following informalities: In claims 20 and 26 at lines 7-8 in each, "said hint information indicating an expected use" lacks proper antecedent basis. Examiner questions the amendment that was made and suggests that the original language was clearer. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum et al., U.S. Patent 4,928,239, in view of Yeager, U.S. Patent 6,594,728 B1.

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6. As to claims 20-21 and 26-27, Baum substantially discloses the recited method including issuing an instruction with address fields and a hint field (CCS) independent of the address (see Figure 3), forming an address to access the cache (from elements 35' and 31', Figure 3), and prefetching the data when unavailable in the cache, in accordance with the hint field, which indicates expected use of the data (see Abstract, column 3 lines 51-56, column 5 lines 28-42, and column 6 lines 34-43; "type of data" gives the expected use).

Baum does not explicitly teach that the hint field specifies a destination of the data, or that the address fields consist of base and index or base and offset fields. Baum describes the fields as tag and index, which are used conventionally in cache accessing, but do not take into account virtual addressing. However, the use of virtual addressing was notoriously well known in the art. Yeager shows an analogous cache prefetch instruction where in order to provide virtual addressing, base and index, or base and offset fields are included in the instruction (see column 6 lines 52-55). Yeager also teaches using a hint field in the instruction (see col. 6 lines 57-58) which specifies a destination of the data (bit 1 selects the way to refill if there is a cache miss, see col. 7 lines 4-11). An artisan would have desired the well known advantages of providing efficient memory utilization for multiple programs (made possible by virtual addressing) to include the use of base and index, or the base and offset fields so as to implement virtual addressing in the system of Baum. An artisan would also have desired to allow the hint field to specify the data destination because this allows control over which data stays in the cache and which is removed, and allows organizing the cache as desired,

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as perhaps by data type, by task, etc. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to include base, index, and offset fields, and to specify the data destination with the hint field, because virtual addressing was a known desirable means of implementing addressing for cache accessing, and specifying the destination allows control over which data is removed from the cache, and provides for organization of the cache.

7. As to claims 22-25 and 28-31, Baum teaches that the hint indicates expected data reuse since the NORMAL, STACK, SEQUENTIAL, and PREFETCH data each have known reuse patterns. Baum also teaches a set associative cache with ways (Figure 2). The teachings incorporated into Baum from Yeager as described above include that the hint directs data to a certain way.

Response to Arguments

8. Applicant's arguments filed August 7, 2003 have been fully considered but they are moot in view of the new grounds of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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6,167,509 Hint field indicates action and offset (column 16).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J Portka whose telephone number is (703) 305-4033. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Gary J Portka
Primary Examiner
Art Unit 2188

October 27, 2003

A handwritten signature in black ink, appearing to read "Gary J Portka", written in a cursive style.